

Appl. No. 09/626,192
Amdt. dated October 13, 2004
Reply to Office Action of July 14, 2004

PATENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A method of producing an object using thermal forming, comprising:
 - positioning a die representative of the object in a chamber;
 - positioning a sheet of material over the die;
 - pressurizing the chamber; and
 - ~~scanning~~ delivering a beam of energy over the sheet and the die to form the object.
2. (Original) The method of claim 1, further comprising placing the die on a moveable support.
3. (Original) The method of claim 1, further comprising placing a seal between the sheet and the chamber.
4. (Original) The method of claim 1, further comprising circulating cool pressurized air after the object is formed.
5. (Original) The method of claim 1, further comprising aligning the die and the sheet.
6. (Original) The method of claim 1, further comprising providing feedback data to a control system using a camera.

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7. (Original) The method of claim 1, further comprising delivering a custom thermal pattern to optimize the forming of the object.
8. (Original) The method of claim 1, further comprising providing a mirror to direct the beam onto the sheet and the die.
9. (Original) The method of claim 1, further comprising:
receiving a digital representation of a target path;
generating a mathematically smoothed version of the target path;
applying the smoothed target path to generate a secondary target path; and
generating a streamlined tool-path to fabricate the object.
10. (Original) The method of claim 1, further comprising reading relief data for the object and merging the relief data with generic data to control the path of the beam.
11. (Currently amended) A system for producing an object using thermal forming, comprising:
a chamber adapted configured to receive a die representative of the object and a sheet of material over the die;
a pump coupled to the chamber to raise [[to]] pressure in the chamber; and
a source of energy configured to scan a beam of deliver energy over the sheet and the die to form the object.
12. (Original) The system of claim 11, further comprising a moveable support to suspend the die.
13. (Original) The system of claim 11, further comprising a seal positioned between the sheet and the chamber.

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14. (Original) The system of claim 11, further comprising one or more port valves to circulate air after the object is formed.
15. (Original) The system of claim 11, wherein each die further comprises one or more markers to facilitate aligning the die and the sheet.
16. (Original) The system of claim 11, further comprising a camera positioned in the chamber to provide feedback data.
17. (Original) The system of claim 11, further comprising computer-readable code to generate a custom thermal pattern to optimize the forming of the object.
18. (Original) The system of claim 11, further comprising a mirror to direct the beam onto the sheet and the die.
19. (Original) The system of claim 11, further comprising computer readable code to:
- receive a digital representation of a target path;
 - generate a mathematically smoothed version of the target path;
 - apply the smoothed target path to generate a secondary target path; and
 - generate a streamlined tool-path to fabricate the object.
20. (Original) The system of claim 11, further comprising computer readable code to read relief data for the object and merge the relief data with generic data to control the path of the beam.